

**Notice of Determination/Response to Comments
Addendum to Rationale**

Tosh Farms - Huntland, Tennessee TN0077755 June 30, 2004

I. Background

The Division of Water Pollution Control received an application for NPDES permit from Tosh Farms for a Huntland, TN, operation on August 12, 2002. On December 12, 2002, the division gave public notice of a draft NPDES permit and at the same time scheduled a public hearing for January 21, 2003.

II. Report of hearing

Approximately 25 persons were present at the hearing, making oral and written comments at the hearing and prior to the close of the comment period 10 days later.

III. Executive summary

The chief concern of commenters and of the division about the Tosh Farm is whether or not the hog waste lagoon and the land application of hog waste pose a threat to groundwater and to public and private wells in the area.

The division concludes that controlled application of wastewater on fields around the Tosh farm does not pose a significant threat to groundwater. *Controlled application* refers to application in amounts, at times and by methods as prescribed in the engineered and state-approved comprehensive nutrient management plan. Soils in the area drain well, can support crops, and are present to a depth adequate for assimilation of a controlled amount of wastewater nutrients.

The lagoon itself was designed and built according to current engineering standards to protect from leakage to groundwater.

The division is issuing the NPDES permit to Tosh Farms, having made several amendments based on comments received at the hearing and on updated federal and state CAFO regulations.

III. Comments and responses to comments

The following comments are taken both from written and oral comments.

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Comment 1: Sinkhole to serve as lagoon/receiving waters

We received comment that it is unacceptable for the sinkhole to serve as a lagoon or as a receiving water for discharges from the hog farm, and that this is a very bad idea. Commenters stated it is likely that the waste stored in the sinkhole would migrate through the karst system and contaminate groundwater supplies.

Response:

The state is not permitting the sinkhole north/northwest of the Tosh Farms as a lagoon for hog waste, nor is the pond serving as the receiving waters for discharges from the lagoon on the Tosh property.

Wastewater from the lagoon on Tosh property will be applied to fields around the hog barns. The pond will not be affected by these operations if the lagoon and the spray irrigation system are operated properly.

The public notice given for the proposed issuance of this permit referred to the pond north/northwest of the Tosh hog farm as a "sinkhole" and as "receiving waters," thus incorrectly suggesting that wastewater from the lagoon would be directed to this pond.

Comment 2: Characteristics of the pond/sinkhole north of CA FO farm

Persons commented, either in writing or at the public hearing, on the characteristics of the pond/sinkhole located about 900 feet north/northwest of the Tosh property.

The division received testimony that the sinkhole is actively connected to subsurface groundwater and that the present ponding of water in this depression indicates a high water table. We heard, on the other hand, that the throat to the sinkhole has been effectively sealed (for many years, even since the late 1960s) and that present ponding confirms the sinkhole is not losing a significant amount of water to subsurface groundwater.

Subsequent to the hearing, the engineering firm providing technical expertise to the Tosh farm submitted a letter of comment and an amendment to the permit application, which were dated January 31, 2003, and therein argues that the "sinkhole" is not a sinkhole but a pond.

Of concern to several commenters is that, if the sinkhole is draining into subsurface waters and the pond water becomes contaminated, such contamination will be transmitted to groundwater and possibly well water. Thus, it would be unacceptable to have waste deposited in this area, if there is a connection with groundwater.

Response:

Division staff collected information in TDEC files on the history of the pond/sinkhole. The following is a narrative of what we found.

USGS topographical maps (Huntland quadrangle, 80-SE) show this pond/sinkhole as a closed depression, indicated by a closed contour line (at elevation 940') with closely and evenly-spaced tick marks on the inside of the closed contour. This depression is about 2100 feet long and on average 350 feet wide. It is located approximately 900 feet north/northwest of the Tosh hog operation.

A 1947 USGS topographical map shows a small (100 feet diameter), circular-shaped body of water 400-500 feet inside the eastern edge of the closed depression. The location is slightly to the east of a fence line running northwest/southeast through the depression. A 1958 Franklin county soils map shows a perennial pond 350' by 250' at the same place. Its shape is nearly circular.

A 1972 photo revised USGS topographical map indicates standing water in area about 320' by 180', to the east of the fence line. A 1975 aerial photograph shows an elongated pool, slightly larger than in the USGS map of 1972. A 1979 aerial photograph shows a more elongated pool (500' by 150') narrowing as it reaches west. It appears that most of this pool is to the west of the fence line running through the depression.

Diagrams drawn by an observer in the mid-1980s show a considerably larger, elongated pool that has stretched westward of the fence line 1500 feet and 500 feet eastward of the fence line. Aerial photos in the mid-1990s and 2001 show a pond that corresponds in shape and nearly in size to the closed depression on the topographical map, in size about 2100 feet by 350 feet.

Thus, from the above information, it appears that a pond has existed within the closed depression, and that overall it increased in surface area from 1947 to its present size as early as 1983.

A state inspector visited Mr. H. A. Schultz in November, 1983, who, as the state inspector reported, stated that "about four years ago [1979] there was additional land movement and the sinkhole drained subsurface." If the statement reported is true, then apparently there was significant drainage of the pond to the subsurface in 1979. See item no. 6 for additional comment on this event.

We do not have conclusive experimental data on the nature of the connection between this pond and groundwater. In 1983, the state placed a dye into the pond in question [behind H.A. Schultz's hog barns] and instructed H.A. Schultz and the Owens [east - northeast of the pond about ½ mile] to collect well water samples over the next nine days. On testing, no dye was found in the samples. On the other hand, samples of well water in the area [Randall and Emmitt Owens] in 1983 and 1986 contained the bacteria fecal coliform and fecal streptococcus. The high concentration of fecal streptococcus indicated animal waste contamination of the groundwater.

Conclusions

It seems very likely that past use of the H.A. Schultz pond as a dumping area for manure was a source of bacterial contamination to groundwater and affected nearby wells.

We believe that the depression in question may properly be called a sinkhole but that at present it is well-plugged. It is not an uncommon phenomenon for a sinkhole to plug and retain water.

Comment 3: Land and vegetation are suitable for application of wastewater

Commenters note the karst topography of the land around Huntland and regard application of wastewater in such an area to be unsafe to the groundwater. One commenter noted that the whole operation (Tosh farm, lagoon and fields) is within the drainage area of the sinkhole to the north of the farm.

On the other hand, the technical representative for Tosh Farms points out the suitability of the land and vegetation for receiving a controlled amount of wastewater. He notes that

the wastewater is to be sprayed on the land according to established technical criteria. In particular:

- i. waste will be applied to the land according to UT Standard Fertilizer Recommendations for Field Crops; which specify that land applications will occur periodically, during times suitable for nutrient utilization by the crops (in this case, applications in summer for Bermuda grass and in spring and fall for the fescue); and
- ii. no land application will occur during the months of December, January, and February, when forage crops lie dormant.

Response:

After considering the data and information available to us, we conclude that a controlled amount of wastewater can be applied in this area, without harming groundwater supplies. We believe that the soil can accommodate the nutrients and effectively break down viruses and bacteria. For a brief description of these processes, see the chapter "Application of Wastewater to Soils," from the EPA manual entitled, Onsite Wastewater Treatment and Disposal Systems, EPA 625/1-80-012, October, 1980.

The soils are considered below, with respect to type, depth, and drainage patterns. *Soils -*

type and suitability for wastewater application

The referenced EPA manual states, "[n]umerous studies have shown that 2 ft to 4 ft (0.6 to 1.2 m) of unsaturated soil is sufficient to remove bacteria and viruses to acceptable levels and nearly all phosphorus. The needed depth is determined by the permeability of the soil. Soils with rapid permeabilities may require greater unsaturated depths below the infiltrative surface than soils with slow permeabilities."

The soils map of Franklin county shows the following soils where Tosh wastewater is to be applied:

Soil Code	Soil Name	Drainage	Consistence	% of application area
Cp	Cumberland & Etowah silty clay barns, eroded undulated phases	Good	Firm	21.2
Be	Baxter cherry silt loam, eroded rolling phase	Good	Firm	20.9
Cr	Cumberland & Etowah silty clay - barns, eroded rolling phases	Good	Firm	14.9
Se	Stony hilly land, Talbott & Colbert soil mtl	Not suitable for crops because of limestone outcrops		10.9
Ec	Emory silt loam-	Good	Moderately friable	10.7
Bc	Baxter cherty silt loam, eroded undulating phase	Good	Firm	6.7
Ta	Taft silt loam	Imperfect	Friable	6.6
He	Hermitage silt loam, eroded undulating phase	Good	Firm	5.6
Cm	Cumberland & Etowah foams, eroded undulating phases	Good	Firm	1.9
Dp	Dewey cherry silty clay loam, eroded rolling phase	Good	Firm	0.6
			Total	100

Shaded soils are those of the lower field (field no. 1, the northern field), adjacent to the pond.

Over 85% of the total area of these fields are suitable for crops and application of wastewater. Accordingly, as long as the soil is in an unsaturated (low moisture content) condition, bacteria and viruses should be removed within four feet of the ground surface.

Soil -- depth

Soil depth is significant because, as noted above, at least four feet must be present above rock in the land application fields. The following discussion deals with depth of soil to rock. Using available data, we will estimate depth of soil above rock in this vicinity.

The geologist for the USDA, Natural Resources Conservation Service, notes that well driller logs for eight (of nine) wells on the farm¹ indicated depth to rock ranges from 36 feet to 77 feet and averaged 58 feet. If the average elevation of the wells is 960 feet² then the average rock elevation is 960 minus 58, or 902 feet. This is 38 feet below the approximate water level of the pond and below the lowest point in field no. 1.

We conclude there is a substantial amount of soil material present atop the underlying rock, where the fields in question are located. If wastewater is applied, we expect there is enough soil material to provide for the breakdown of bacteria and viruses in the wastewater.

Soil - drainage patterns of fields, condition of saturation

Also of concern, in any case of land application of wastewater, is whether or not the land is too wet or frozen. This is particularly an issue in the field no. 1, the lower field, in which are two noticeable areas of shallow depression.

The proposed permit included, by reference to the nutrient management plan, requirements that wastewater not be applied to fields in wet weather. Among the provisions of the Tosh Farms nutrient management plan are ones controlling when to apply and how much wastewater to apply to the land. The plan allows only three or four applications per year of wastewater to the surrounding fields.

There are various other controls in the nutrient management plan for ensuring that an excessive amount of waste is not applied to the lands:

- Do not apply nutrients in December, January, and February.
- Nutrients from any source shall not be applied on saturated, frozen and/or snow-covered soil.
- Nutrients will not be spread in an established waterway or any defined drainage way that carries concentrated flow.
- Manure and nutrients cannot be applied on land that is subject to frequent flooding unless the manure or biosolids is incorporated immediately.
- Nutrients cannot be applied when imminent rain is expected.

¹ The geologist's report does not define the extent of the farm. It is described as "the Virgil Schultz farm in Franklin County, Tennessee." The report also states, "Mr. Schultz has several water wells on his property to supply his livestock operations."

² The average elevation of the road, and thus of most residences in the area, is about 950 feet, as shown on the USGS topographic map; it appears that most of the nearby farmland is a slightly higher elevation; thus we estimate 960 feet for an average surface elevation of wells in the area.

- Apply manure only to crops at the recommended rates. Avoid application during windy periods.
- Irrigation water management. Effluent from the storage facility will be applied to fields to meet crop nutrient needs for nitrogen. Over-application will be avoided to prevent runoff, deep percolation and the contamination of groundwater.

Regarding application rates, the following, additional requirements are also in the nutrient management plan:

- Re-calculate application rates when crop, application method, feed ration, or consistency of manure changes
- All buffers should be maintained when nutrients are applied - this includes waterways and drainage ways.
- Manure and biosolids application should be restricted from land subject to frequent flooding, unless incorporated immediately.
- Do not apply nutrients when rain is expected.
- Calibrate equipment to maintain uniform distribution of manure.

Conclusion

Controlled application of wastewater in fields around the Tosh Farm should not affect groundwater.

Comment 4: Protection of farmland and wild plateau lands adjacent to Tosh Farms

A commenter points out the beauty of the southwestern corner of Franklin County, the gently rolling farm country at the foot of the Cumberland Plateau and notes that the farms should operate in a manner so that the resources will be sustained. The Nature Conservancy of Tennessee and Alabama have embarked on a project of national significance on the 80,000 acres of wild plateau land which borders the Tosh Farms property.

Response:

This comment is noted; however, the Division of Water Pollution Control is limited in what issues we can address via our permit programs, those being impacts on water quality.

Comment 5: Potential for contamination of drinking water

One commenter expressed personal concern about the potential for ground water contamination because of the sinkhole adjacent to the hog farm. The commenter was opposed to operation of the farm if it would contaminate drinking water.

A commenter notes that water that goes into the sinkhole becomes groundwater, and though we don't know exactly where the underground water moves, it is a good bet that it connects with the groundwater shared by farm wells and the City of Huntland. This water will linger in the vicinity.

Another commenter points out, similarly, the fact that in the vicinity of the farm are several sinks and that the underlying karst geology may be particularly vulnerable to inputs from surface water. Because the groundwater provides drinking water for

individual households and for the municipality of Huntland, contamination of the groundwater would present a public health problem. Possible contaminants of concern are nutrients, bacteria and possibly antibiotic-resistant bacteria that are the result of feeds that incorporate antibiotics. The commenter opposes issuance of the permit on this basis.

Response:

As discussed in response to comment no. 2, wastewater is not being discharged to the sinkhole. And, as discussed under comment no. 3, the division believes that the land is suited to receive wastewater. If the approved protocols are followed in applying the wastewater to the land, the soil and vegetation will incorporate the nutrients of the waste and break down the bacteria, and bacteria will not enter groundwaters supplying wells. Likewise, the pond will not be affected by the wastewater applied to the land.

If the lagoon fails and the entire volume of it breaks out and flows downhill toward the pond, we estimate that the present topography of the land would prevent a portion of the volume, but not the entire volume, from reaching the pond. In this case, the pond would be contaminated with wastewater.

A contaminated pond does not necessarily mean that groundwater will be contaminated, because, as mentioned above, it appears that the sinkhole is plugged. And, breakdown of the pathogens will occur following the slug to the pond, at a rate depending on volumes and on weather conditions - temperature, sunlight and wind. Temporary contamination of the pond, which is unlikely, would be in contrast to the situation in years past, when long-term loading of manure to the pond in the 1970s and 80s most likely did result in contamination to well-water supplies.

* In consideration of the small possibility that the lagoon will breach, the division is requiring that Tosh evaluate whether or not wastewater would enter the pond in case of a breached lagoon. The nutrient management plan requires the operator have a plan of action in case of facility spill, leak or failure.

Comment 6: Huntland well water, history of contamination

One commenter spoke about the history of contamination of the Huntland well water. He requests that the state review public records of the last 35 years in reference to water quality in this watershed. The commenter points out that the town has a long history of nitrates in the drinking water supply, and of bad odor, high levels of manganese, iron bacteria, coliform bacteria (both fecal and e-coli), sulfur bacteria and slime bacteria.

Noting that there are many sinks and sinkholes in between the "sinkhole" north of the Tosh Farm and the Huntland wells, the commenter urges the state to conduct dye testing of the sinkhole and suggests this be done during wet weather.

Response:

The division reviewed several years of information in the TDEC files, from the city water system. City water system wells retrieve water at a depth of 250-300 feet.

Nitrates: Reviewed from beginning of 1998, once/year data show no exceedances in finished water.

Bacteriological: Reviewed from beginning of 2001, twice/month data show no exceedances in finished water.

These data reflect status of treated/finished water, and do not reflect groundwater quality. We have not reviewed 35 years of data, but the last several years of data indicate clean water provided by the city water system.

On the other hand, private well water sampling from the 1980s did indicate groundwater quality. As noted in the response to comment 2, well samples that the state collected in 1983 and 1986 in the vicinity of the H.A. Schultz hog barns showed animal waste contamination. Residents were advised not to drink the water unless it had been boiled or chemically disinfected.

Samples were taken in January, 1988, by the Division of Water Supply. Wells of Doug Smith, Linda Arnold, and Pam Ennis were positive for fecal coliform and fecal streptococcus, and wells of Mr. Emmett Keith and a Mrs. Shockley, for fecal streptococcus. A positive for fecal streptococcus indicates that animal waste is contaminating the water supply. Residents were advised to install a system to disinfect the well water.

It seems very likely that past use of the H.A. Schultz pond as a dumping area for manure from the adjacent hog barns was a source of bacterial contamination to groundwater, which affected nearby wells. This is no longer occurring.

Comment 7: Availability of land for application of wastewater; perpetual easement

There was a question raised as to the availability of land for application of wastewater.

Response:

Five fields totaling about 98 acres of usable land around the Tosh hog barns have been set aside for growing bermuda grass or fescue hay.

In September, 2001, Mr. William Hayes and wife Shirley Hayes entered into a wastewater easement agreement with James A. Tosh and wife, Alonna Sue Tosh, d/b/a Tosh Farms. The agreement has provided that Mr. Hayes, who owns land adjoining Tosh Farms, will spread wastewater on his property according to federal and state guidelines.

The nutrient management plan prepared for Tosh Farms is designed for application of waste onto these 98 acres.

Comment 8: 25 year, 24-hour rainfall event; potential for overflow or breach of lagoon

Commentors express doubts about whether the design of the waste lagoon is adequate for containing the waste and rainfall runoff.

One commenter explains that the wet season in this part of the country results in fairly large rain events following closely after another. The commenter believes these will overwhelm the lagoon and will wash away effluent applied to fields. A commenter asks where the wastewater would go during a catastrophic rain event and a breach of the pond.

A commenter requests that Part II, C. and Part III, A, be rewritten to alleviate confusion and eliminate needless requirements that apply only to traditional industrial and municipal wastewater treatment systems. I.e., language about "upset," "washout," and toxic pollutants."

Response:

With respect to design of the lagoon, the division recognizes the work of design engineers and the NRCS, who oversaw the construction of this lagoon so that it should not fail. See also comment 12 below. In short, we believe the design of the pond is adequate to retain the wastewater and rainfall that enters it, with the possibility of a rare overflow.

The permit allows for an overflow of the animal waste lagoon in the event of a 25-year, 24-hour rainfall. EPA CAFO regulations allow such overflows.

* As noted in our response to comment 5, the division is requiring that Tosh Farms evaluate the disposition of wastewater in the event of an overflow.

With respect to the needless requirements of this permit related to traditional industrial and municipal wastewater systems, we will leave these in the permit, as in practically all of our NPDES permits. We understand that not all portions of the permit apply to or fit the situation at this particular facility.

Comment 9: Protection of Mathias Branch and Taylor Creek

A commenter, understanding overflows to be a possibility in the event of a 25-year, 24-hour rainfall event, states that an overflow will result in pollution of Mathias Branch and Taylor Creek. These streams are not listed as Tier 2 streams, but the commenter argues that as tributary branches that support fish and aquatic life and recreation, they deserve protection beyond the Tier 1 classification.

Response:

The topographic map shows that an overflow would traverse one of the adjacent spray irrigation fields and then, if volume were great enough, would enter the surface water pond to the north of the field.

Mathias Branch and Taylor Creek are nearby the Tosh Farm but are not in the same watershed.

Comment 10: New EPA and state CAFO regulations

The commenter points out that the EPA has reviewed the failure of CAFO lagoons, and that there is a need "to replace this receiving/storage system." EPA is issuing new guidelines for CAFOs; it would be premature to issue an NPDES permit for Tosh Farms - Huntland until the NPDES rules are changed.

Response:

New federal CAFO regulations have been promulgated. Also, the Tennessee Water Quality Control Board has adopted a set of regulations corresponding to the new federal regulations. The adopted regulations are expected to become state rules within a few months.

The new regulations allow waste lagoons and allow discharges from the lagoons, provided that the lagoon is designed to discharge only in situations of high rainfall. The regulations prohibit discharges from such lagoons in normal circumstances. In the case

of existing CAFO operations, the lagoon must be designed to contain all wastes, and runoff and rainfall from a 25-year, 24-hour storm event.

This permit is being issued in accord with the new regulations.

Comment 11: What type of buffer zone is required to protect surface waters?

A commenter asks, "What type of buffer zone is required to protect surface waters?"

Response:

Rulemaking hearing rules, adopted by the Water Quality Control Board in December, 2003, include this definition of *vegetated buffer*:

"Vegetated buffer" means a narrow, permanent strip of dense perennial vegetation established parallel to the contours of and perpendicular to the dominant slope of the field for the purposes of slowing water runoff, enhancing water infiltration, and minimizing the risk of any potential nutrients or pollutants from leaving the field and reaching surface waters.

The term *setback* is defined:

"Setback" means a specified distance from surface waters or potential conduits to surface waters where manure, litter, and process wastewater may not be land applied. Examples of conduits to surface waters include but are not limited to: open tile line intake structures, sinkholes, and wells.

As adopted by the Water Quality Control Board, requirements for buffers reads as follows:

1200-4-5-.14 16) All dairy, cattle, swine, poultry and veal CAFOs that land apply manure, litter, or process wastewater, must do so in accordance with the following best management practices (BMPs)

(d) Application of manure, litter, and process wastewater that:

1. is applied no closer than 100 feet to any down-gradient surface waters, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface waters unless,

(i) the CAFO substitutes the 100 foot setback with a 35 foot wide vegetated buffer where applications of manure, litter, or process wastewater are prohibited, or

(ii) the CAFO demonstrates that a setback or buffer is not necessary because implementation of alternative conservation practices or field-spec (tic conditions will provide pollutant reductions equivalent to or better than the reductions that would be achieved by the 100 foot setback,

2. is applied in accordance with setbacks established in NRCS Conservation Practice Standard 590 for any potable well, public or private...

If crops are planted up to a waterway, then land application of waste can be no closer than 100 feet from the waterway. If a specially vegetated, non-harvested buffer protects the waterway, then application of waste may occur as near as 35 feet from the waterway.

The following are setbacks in NRCS Conservation Practice Standard 590 for any potable well, public or private:

Object, Site	Situation	Buffer Width (ft.) from Object, Site'
Well	Located up-slope of application site	150
Well	Located down-slope of application site provided conditions warrant application	300

¹ Waterbody includes pond, lake, wetland, or sinkhole. "Open" sinkholes should be protected the same as a well. Where sinkholes are not "open," a buffer width should be established in the flat area around the rim of the basin before the change in slope up out of the basin begins. Stream includes both perennial and intermittent streams.

The Tennessee Division of Water Supply requires that water wells be located at the following minimum distances from certain features:

Sewage lagoons, leaching pits.....	200 feet
Animal pens, feed lots	100 feet
Septic tanks, drain fields	50 feet.

In the case of the Tosh Farms - Huntland, land application of the wastewater is performed on adjacent lands by a 3rd party, rather than by Tosh Farms. The NPDES permit for Tosh Farms does not directly regulate 3rd party recipients of wastewater nor 3rd party land application of wastewater. The comprehensive nutrient management plan reviewed and approved by the NRCS and the TDA specify proper application of wastewater to the land.

Comment 12: Wastewater system designed to standards.

One commenter submitted the following items in order to make it known that the lagoon is adequate to contain and control the wastewater and that spraying of wastewater on fields is safe.

The lagoon was designed to store and treat manure and wastewater from 10,000 finishers (4000 animal units). The lagoon construction was certified in October of 1997 by the NRCS to meet or exceed the requirements of Conservation Practice Standard: Waste Treatment Lagoon (Code 359). Professional engineering firm R.I. Lowndes and Associates certified the lagoon clay liner in April, 1997.

The NRCS also prepared a comprehensive nutrient management plan (CLAMP) for the operation. This plan indicated that the size of the lagoon was more than adequate for treatment and storage of manure and wastewater generated by the operation. The NRCS certified the CLAMP in May, 2002, as satisfying all applicable NRCS standards for manure and wastewater handling and storage, nutrient management, and land treatment practices. The District Conservationist for Franklin County also certified that all elements of the CLAMP were acceptable and compatible.

The lagoon design incorporates 134 days of storage, which exceeds the 60 day minimum treatment period required by the Conservation Practice Standard: Waste Treatment Lagoon.

The lagoon is designed to maintain three feet of freeboard, which includes six inches of storage for the 25-year, 24-hour storm event; 17 inches of storage for precipitation in excess of evaporation during the storage interval; and the remaining 13 inches satisfying the TDEC requirement for one foot of freeboard. The lagoon design accomodates ten

years' accumulation of sludge without impacting either waste treatment or storage capacity.

Response:

The division notes the comment. We also accept the engineering of the lagoon as adequate.

Comment 13: Allowed number of animal units should be addressed in the permit.

One commenter notes that the permit does not appear to contain any restriction on the number of animal units relative to the size of the waste management system.

At least one commenter has questioned the size of the animal growing operation. Is it 10,000 finisher hogs or 4100?

Response:

The present population of the farm is 2700 sows, 1000 finishers, and 400 nursery pigs; or a total of 4100 swine. In terms of *animal units*, this amounts to 1500. $[3700 \times 0.4 + 400 \times 0.05 = 1500]$. The design of the facility and lagoon was 4000 animal units.

The division will include the following definition of animal unit in the permit and include a limit in the permit of 4000 animal units:

Animal Units, for the purpose of this permit, is calculated by adding the following numbers: the number of swine weighing over 55 pounds multiplied by 0.4, plus the number of swine weighing 55 pounds or less multiplied by 0.05.

Please note that this definition for animal unit is unique to this permit, for the sake of incorporating a limit in the permit.

Comment 14: Air pollution and other considerations

According to a study by L.L. Jackson, 1998, it is possible that as much as 80% of a lagoon's nitrogen escapes as air emissions. This and the associated community distress associated with large numbers of livestock in a concentrated area must be considered by TDEC. There is a school only about one mile from the site that receives the odors from the hog operation.

Response:

The Division of Water Pollution Control focuses on water pollution issues, and this NOD and the NPDES permit for Tosh Farms do not address air pollution issues.

We consulted the state's Division of Air Pollution Control about odor at hog farms. Generally the state does not regulate odor, as the state does not have odor regulations.

It can be noted that the nutrient management plan includes a list of practices to reduce odor. For instance, animal cleanliness and health, good ventilation and environmental controls for the buildings, minimizing dust. Biofilters for exhaust gases and covers for waste storage ponds and tanks are other methods.

IV. Revisions to permit at issuance

To summarize, the following significant changes are being made to the permit.

- Add restrictions on number of hogs that can be housed at the Tosh Farms; the limit will be 4000 animal units
- Ensure that new federal and state CAFO rules are included in this permit; e.g., annual report requirement
- Requirement that the permittee investigate the disposition of wastewater in case of an overflow or of a breached pond and prepare contingency plans for those events
- Add language in the permit requiring submittal of a closure plan for the waste lagoon, per updated state CAFO regulatory standards; this is required within one year of permit effective date
- Revise the authorization language to read: "a concentrated animal feeding operation (CAFO) which is located at approximate coordinates, latitude 35.0260 and longitude, - 86.2694 approximately 1 and 1/2 miles south of Huntland.

Date:
Saya Ann Quails, P.E. Manager, Permit Section

6/30/04

